



III. USING COMMUNICATIONS TECHNOLOGY TO ADDRESS UNIVERSAL SERVICE CHALLENGES AND MEET CRITICAL NEEDS

A significant percentage of the population in Africa lives in areas that are rural, unserved, or underserved. These service deficiencies reflect a lack of adequate facilities for voice, video, and data communications that, if sufficiently available, could be used to satisfy consumer needs, inform the general public, and provide service training in critical areas such as education and health care.

Generally speaking, teledensity is low in Africa. According to the ITU, in 1997 the overall average teledensity in Africa was 2 lines per 100 persons, compared to 31 in the Americas, 7 in Asia and 36 in Europe. The 1997 overall world average was about 14. Of the 55 African economies cataloged by the ITU in 1997, only 17 had teledensity above the average of 2. However, in recent years, teledensity has increased in several countries because African governments have liberalized telecommunications markets, promoted competition, and adopted transparent regulatory policies. This is particularly true in Ghana, Uganda, South Africa, and Kenya.

One direct result of recent governmental reform actions has been the use of satellite technology. Although many African nations have not yet been able to license fully the new global and regional satellite services that can greatly extend telephony to citizens located in rural and underserved areas, as well as deliver critical broadband and internet services in the future, there is an increasing reliance on satellites to meet telephony and other needs. For example, currently, over 60% of sub-Saharan Africa's international telecommunications traffic is carried via satellite.

In conjunction with his efforts in Africa to work with telecommunications regulators to establish independent, pro-competitive regulatory authorities, Chairman Kennard met with African decision-makers to discuss potential service solutions that result from open market policies. Where possible, he and the FCC team sought to highlight newly formed and existing operations that demonstrate a hint of the wealth of available communications technology that can be used to overcome challenges. The extent to which these technological applications are able to flourish in a given country is directly related to that country's regulatory environment – in particular whether it is characterized by transparency, predictability, and flexibility.

The areas highlighted below pertain to South Africa. However, the specific examples discussed and lessons learned, in varying degrees, reflect conditions and potential in many other countries throughout Africa.



A. WIRE AND WIRELESS SOLUTIONS

The Challenge

Teledensity in South Africa today is slightly above 11 telephone lines per 100 persons. While relatively high when compared to many other African countries, this averaged figure obscures a significant disparity within the population of South Africa itself. In 1994 for example, the year of South Africa's first all-races election, teledensity was 9.8. In urban areas, however, it was as high as 25, and as low as 0.1 in some rural areas. So while teledensity overall was somewhere near the world average, for certain segments of South Africa's population, in particular the historically disadvantaged, teledensity is substantially lower.

Thus, access to basic telephony for the historically disadvantaged, and for those in underserved, rural, or unserved areas was, and continues to be, a major issue that needs to be addressed.

A Solution

Use low-cost wire and wireless technologies to extend the network to formerly hard-to-serve areas.

As part of its commitment to install 2.8 million new telephone lines, including 120,000 additional public pay telephones by 2002, Telkom South Africa Ltd. (Telkom) and its international investors, SBC Communications and Telekom Malaysia, are extending the network in rural areas. Using new wireless and wire technologies, Telkom expects to provide communications services to some 3,200 villages with populations between 100 and 2,000. In addition, Telkom expects to equip approximately 2,000 schools with internet connections and personal computers to assist in South Africa's educational efforts. As of August 1999, the Telkom-SBC-Telekom partnership reported that it had connected 840,000 new subscribers to the network, that over 1,300 villages had received telephone service for the first time, and that 59,000 public payphones had been installed. As former President Nelson Mandela noted, the intent of the partnership is "to expand telephone services to all [South African] people – especially to those communities which have been disadvantaged by apartheid, with urgent emphasis on health, education and other institutions."

The government of South Africa has committed to permitting competition in basic telecommunication services by the year 2003. The FCC supports competition in South Africa as the most viable means of solving the access dilemma and increasing teledensity at the most rapid rate possible. It is not practical, necessary or desirable for a single entity to shoulder the full burden of ensuring universal service.



A Practical Application

Lusaka and Alexandra represent models reflecting the strategy to use wire and wireless combinations to extend the network to the historically disadvantaged in somewhat rural areas. The FCC team traveled to Lusaka, an informal settlement outside of Johannesburg, to highlight one of Telkom's wireless local loop projects, and its associated *Telkcommunity* center. The brainchild of Mr. Maurice James, the mobile *Telkcommunity* center serves local residents' everyday needs to connect service, to pay bills, and to fax, among other things, all in local languages. The center is managed, staffed, and protected by local residents.



Making a Difference in Rural Areas:

Above: View of new housing community, equipped with wireless telephones, in Alexandra. The homes were used for the All Africa Games and later were to be sold to provide housing to economically disadvantaged families. Right: Chairman Kennard, FCC staff, officials from Telkom South Africa and officials from the U.S. Embassy tour one of the new homes.

From Lusaka, the FCC team traveled to Alexandra where Telkom, Eskom (electricity), the Water Department and Public Housing had built a housing project for athletes competing in the 1999 All Africa Games. Each house is equipped with basic utilities, including telephones, the latter of which is deployed via fixed wireless technology. Following the Games, the homes were to be sold to pre-selected economically disadvantaged residents of Alexandra who received loans on favorable terms.



B. SATELLITE SOLUTIONS

The Challenge

Currently, over 75 percent of South Africa's population resides in rural areas. Teachers in these areas are in critical need of training to ensure that students in historically disadvantaged areas are schooled by highly-skilled educators. The same concerns exist with respect to the ready availability of adequate health care information and training for health care providers.



A Solution

License multiple, privately-owned entities to provide needed services. For example, SATRA has licensed Multichoice/Orbicom PTY, Ltd. to access PanAmSat's PAS-4 satellite transponders and offer rural educators a means of circumventing the problem of limited bandwidth due to lack of overall infrastructure. This access offers rural teachers instant, simultaneous broadcast of information from a point-to-multipoint system and seamless distribution of multimedia files. Thus, highly specialized, long distance training is now a reality.

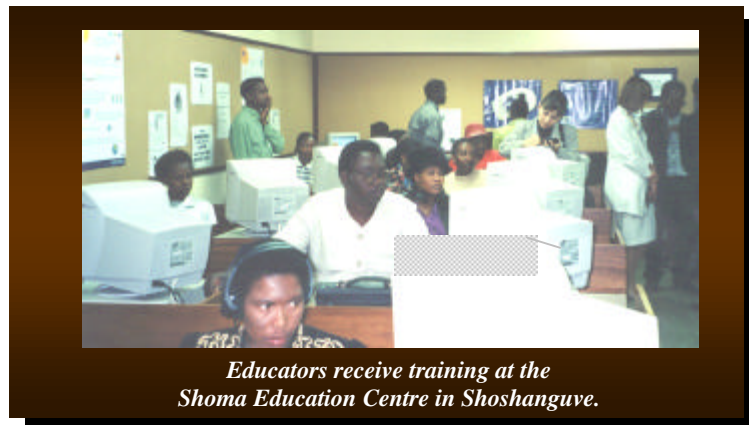
A Practical Application

The FCC delegation traveled to the Shoma Education Training Centre in Shoshanguve, a rural township north of Pretoria, South Africa to highlight the use and impact of this satellite technology. The Shoma Centre is a distance education interactive training facility designed to bring updated and progressive outcome-based education training to educators in rural areas. There are a total of 11 such sites throughout South Africa. At Shoma, the delegation observed a live demonstration of the educational training broadcast, as well as the participation of teachers in small-group workshops.

In addition, one-on-one interviews were conducted as the teachers used the internet to complete the training module exercises with their colleagues. Significantly, each week the Shoma Centre trains over 500 teachers at its facility.



Chairman Kennard and Thandi Chaane, Executive Director of the Shoma Education Initiative



Educators receive training at the Shoma Education Centre in Shoshanguve.

Other Applications

Point-to-multipoint satellite technology is equally available to meet long distance training needs in health care and other critical areas. It is an increasingly viable means of meeting overall consumer requirements.



C. BROADCASTING SOLUTIONS

The Challenge

Consolidation in the broadcast industry can reduce operating costs for large radio stations but, on the other hand, can close the doors of opportunity for many new entrants by increasing station prices and making it more difficult to enter the broadcast industry as independent operators. This can adversely impact the ability to have and maintain a healthy diversity of viewpoint, which is critical to democratic society. Also, many communities in South Africa cannot receive a licensed broadcaster's signal for technical or other reasons.

A Solution

The radio airwaves are a great natural resource, and the creation of low power radio services provides an effective way for more people to use this resource. Low power radio stations are a means of serving urban and rural communities because they are less expensive to operate and utilize less bandwidth.

South Africa, through its legislation and implementing decisions, expressly seeks to ensure fairness and a diversity of views that broadly represent South African society. The Independent Broadcasting Authority Act of 1993, creating the IBA as the broadcast regulator, empowers the IBA to issue licenses for community sound broadcasting stations. Community radio is a service that strengthens communities by allowing communities of listeners to receive and share information and build their community ties. South Africa's IBA is in the process of licensing community sound broadcasting stations. As of September 30, 1999, 87 community radio broadcasters were on the air in South Africa.

Practical Applications

The FCC delegation visited Soweto Community Radio in Dube, Soweto, the largest township in South Africa with a population of about 3.5 million. Soweto Community Radio shares a frequency with Buwa Community Radio, and every six months they switch the noon-to-midnight time slots. Soweto Community Radio, which uses the slogan "Your Backyard Colour Radio," has a commitment

to inform listeners about critical issues, to give listeners the opportunity to speak out, and to promote local music. Fifty percent of broadcast time is devoted to issues involving women and youth. During local and national elections, Soweto Community Radio invited all candidates to participate in a live two-hour program. After the elections, the station invited Ward Councillors to participate with listeners in an on-the-air discussion of neighborhood concerns.



Soweto Community Radio



Chairman Kennard and Zane Ibrahim, Managing Director, Bush Radio

The FCC delegation also met with community broadcasters in Cape Town, South Africa where the Chairman participated in a live broadcast roundtable discussion on the future of community radio in South Africa. The roundtable, held at Bush Radio, included representatives from several community radio stations in the Cape Town area, the ANC, the Democratic Party, and the New National Party. See Appendix 12 for a list of participants. Chairman Kennard spoke about the important role that community radio stations have played in helping South Africa achieve a diversity of voices. Bush Radio is

known as the “Mother of Community Radio in Africa” because it was the first community broadcast station on the continent and launched a movement that has resulted in more than 80 stations in South Africa.



In Cape Town, Chairman Kennard participates in a roundtable discussion on the future of community radio in South Africa.

CONCLUSION

Throughout Africa, countries have created or are in the process of adopting national policies on telecommunications and informatics. As these changes occur and take root, they foster the introduction of new communications technologies that hold the promise of delivering access and improved service quality to communities throughout Africa. Introducing competition in wire, wireless, and satellite communications services has additional benefits. Competition lowers prices, increases consumer choice, and spurs growth and connectivity of telecommunications infrastructure, which are crucial to sustainable development of national economies.